

PWSNO 1400017

**EAST SHOSHONE COUNTY WATER DISTRICT-MULLAN
SOURCE WATER ASSESSMENT REPORT**

November 9, 2000



State of Idaho
Department of Environmental Quality

Disclaimer: This publication has been developed as part of an informational service for the source water assessments of public water systems in Idaho and is based on data available at the time and the professional judgement of the staff. Although reasonable efforts have been made to present accurate information, no guarantees, including expressed or implied warranties of any kind, are made with respect to this publication by the State of Idaho or any of its agencies, employees, or agents, who also assume no legal responsibility for the accuracy of presentations, comments, or other information in this publication. The assessment is subject to modification if new data is produced.

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the watershed characteristics.

This report, *Source Water Assessment for East Shoshone County Water District-Mullan*, describes the public drinking water system, the zone boundary of water contribution, and the associated potential contaminant sources located within these boundary. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The East Shoshone County Water District-Mullan drinking water system consists of surface water intakes in the Mill Creek and Boulder Creek drainages. The Boulder Creek source is currently not in use and the water district plans to disconnect it. A Susceptibility Analysis conducted by DEQ Sept 14, 2000 ranked both sources in the low risk category for contamination from volatile organic chemicals, synthetic organic chemicals and microbials. Because of the three inactive lead mines and road building in the watershed, the Mill Creek source ranked moderately susceptible to inorganic chemical (IOC) contamination. The Boulder Creek intake ranked low for susceptibility to IOC contamination.

Radionuclides below the Maximum Contaminant Level (MCL) have been detected in both sources since 1983. Synthetic organic chemicals and volatile organic chemicals have never been found in the water. Barium was detected in routine water samples from Boulder Creek in 1986, 1993 and 1994 in concentrations from 0.1000 to 0.118 mg/l, well below the MCL for Barium of 2.000mg/l. Mercury was detected in the July 1994 sample for Boulder Creek at a concentration of 0.002 mg/l, which is a tenth of the MCL. Neither barium nor mercury was detected in testing after 1994.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the East Shoshone County Water District-Mullan drinking water system, source water protection activities should focus on preventing sediment flow into the creeks from road building, logging or mining or recreational activity. Due to the fairly short time associated with the movement of surface waters, source water protection activities should be aimed at both short-term and long-term management strategies to counter any future contamination threats. Source water protection activities should be coordinated with the appropriate public land management agencies and private landowners in the watersheds. The Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code, regulates logging and road building on both private and public lands. Numerous provisions of the act address protection of domestic water supplies through set banks and best management practices. The Department of Lands is responsible for enforcement of the Act.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact your regional IDEQ office or the Idaho Rural Water Association.

Source Water Assessment for East Shoshone County Water District – Mullan, Idaho

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted.

It is important to review this information to understand what the ranking of this source means. A map showing the entire watershed and the inventory of significant potential sources of contamination identified within the delineated area is attached.

Background

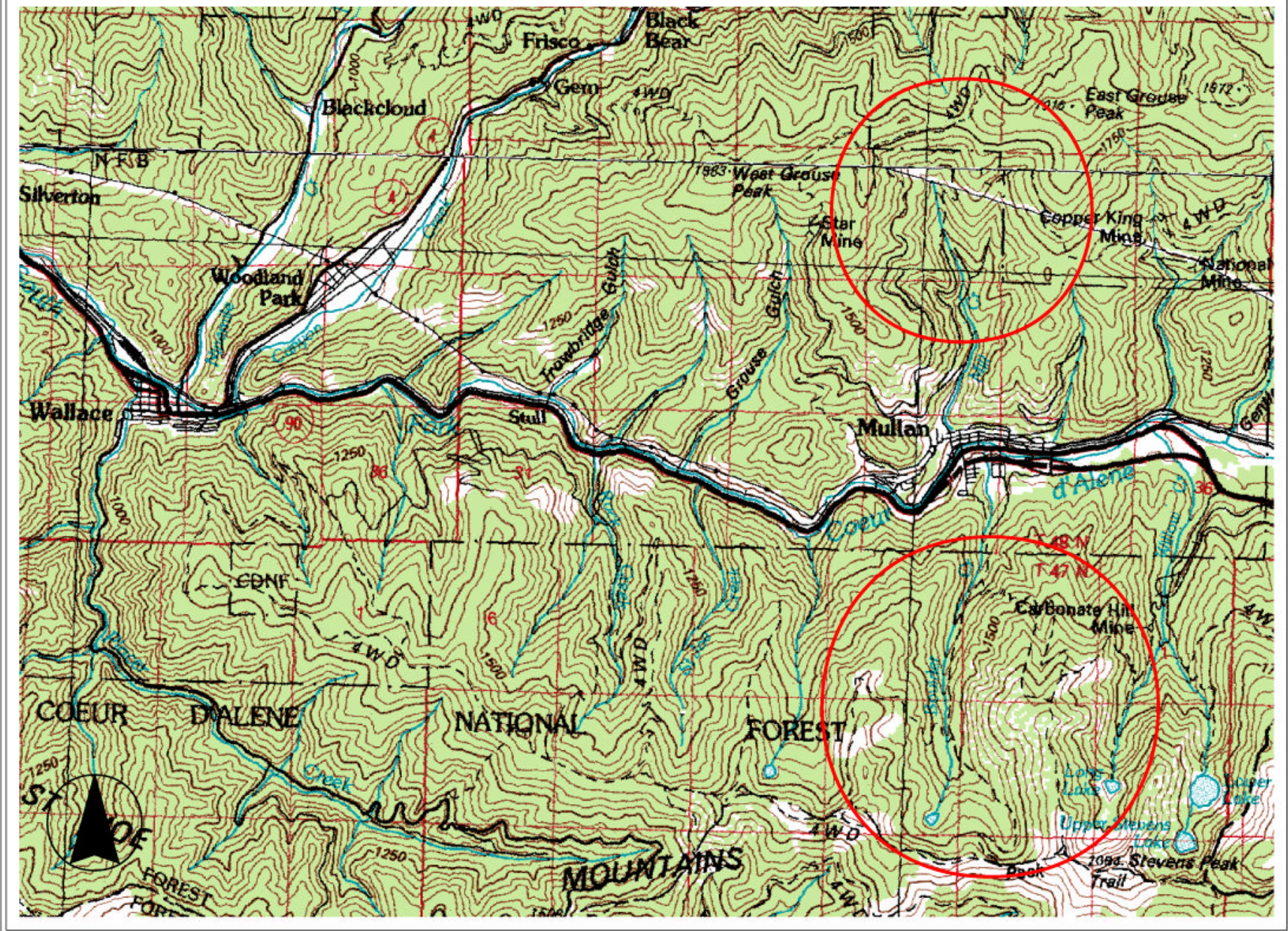
Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the intakes and watershed characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (IDEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. IDEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Figure 1. Geographic Location of East Shoshone County Water District-Mullan



Section 2. Conducting the Assessment

General Description of the Source Water Quality

East Shoshone County Water District-Mullan, Idaho serves a community of approximately 821 people, located in Shoshone County. (Figure 1). Public drinking water for East Shoshone County Water District--Mullan is drawn from the 1100-acre Mill Creek watershed north of town. Water from Mill Creek is treated by membrane ultra-filtration followed by chlorination. Water from the 1876-acre Boulder Creek watershed south of town is no longer used, though it is still physically connected to the distribution system. It was taken off line because it is not being filtered as required by the Surface Water Treatment Rule.

The primary water quality issue currently facing East Shoshone County Water District--Mullan is that of preventing contamination associated with land disturbances in the watersheds. Road building without adequate storm water control has raised turbidity in Mill Creek. Seepage from mines in the watershed poses a small to moderate risk of IOC contamination. In recent years radionuclides have been detected in the water, but below the MCL.

Defining the Zones of Contribution--Delineation

To protect surface water systems from potential contaminants, the EPA required that the entire drainage basin be delineated upstream from the intake to the hydrologic boundary of the drainage basin. (U.S. EPA, 1997b). The EPA recognized that an intake on a large water body could have an extensive drainage basin. Therefore, the EPA recommended that large drainage basins be segmented into smaller areas for the purpose of implementing a cost-effective potential contaminant inventory and susceptibility analysis. The delineation process established the physical area around an intake that became the focal point of the assessment. Because the watersheds for the East Shoshone County Water District--Mullan water system are relatively small, the delineations were not subdivided (Figure 2 and Figure 3). The delineations extend to the watershed boundaries as they appear on a 7.5-minute USGS topographic map.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of surface water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by IDEQ and from available databases.

The dominant land use in both drainages is undeveloped, forested land, and mining. Several unpaved roads cross the Mill Creek drainage. Boulder Creek watershed has fewer mines and roads.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are observed. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation.

What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination. These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply intake.

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted during December of 1998. The first phase involved identifying and documenting potential contaminant sources within the East Shoshone County Water District-Mullan Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by IDEQ. Carl Scheel of the East Shoshone County Water District reviewed the contaminant inventories and accompanying base maps. Mr. Scheel and DEQ staff members conducted an enhanced inventory of the Mill Creek watershed September 13, 2000.

A total of seven potential contaminant sites are located in the delineated source water area for Mill Creek. (Figure 2). There are two potential contaminant sites in the Boulder Creek drainage, both more than half a mile upstream from the intake (Figure 3). Table 1 lists the potential contaminants of concern and information source.

Contaminants of concern are primarily related to sediment from road construction near and crossing Mill Creek. Table 1 lists the potential contaminants of concern and their information source.

Table 1. East Shoshone County Water District-Mullan Potential Contaminant Inventory

Intake	MAPID	Source Description	Source of Information	Potential Contaminants
Mill Creek	1	MINE	Mine Database Search	Silver (IOC)
Mill Creek	2	MINE	Mine Database Search	Lead (IOC)
Mill Creek	3	MINE	Mine Database Search	Lead (IOC)
Mill Creek	4	MINE	Mine Database Search	Lead (IOC)
Mill Creek	5	LOGGING ROAD	Enhanced Inventory	Sediment
Mill Creek	6	SEEP AT BASE OF ROCK DUMP	Enhanced Inventory	Lead (IOC)
Mill Creek	7	UNNAMED ADIT	Mine Database Search	Lead (IOC)
Mill Creek	8	OLD DIVERSION DAM	Enhanced Inventory	NONE
Mill Creek	9	SWITCHBACK NEAR CREEK	Enhanced Inventory	Sediment
Boulder Creek	1	BANNER MINE	Mine Database Search	Lead (IOC)
Boulder Creek	2	BITTER ROOT PROSPECT	Mine Database Search	Lead (IOC)

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

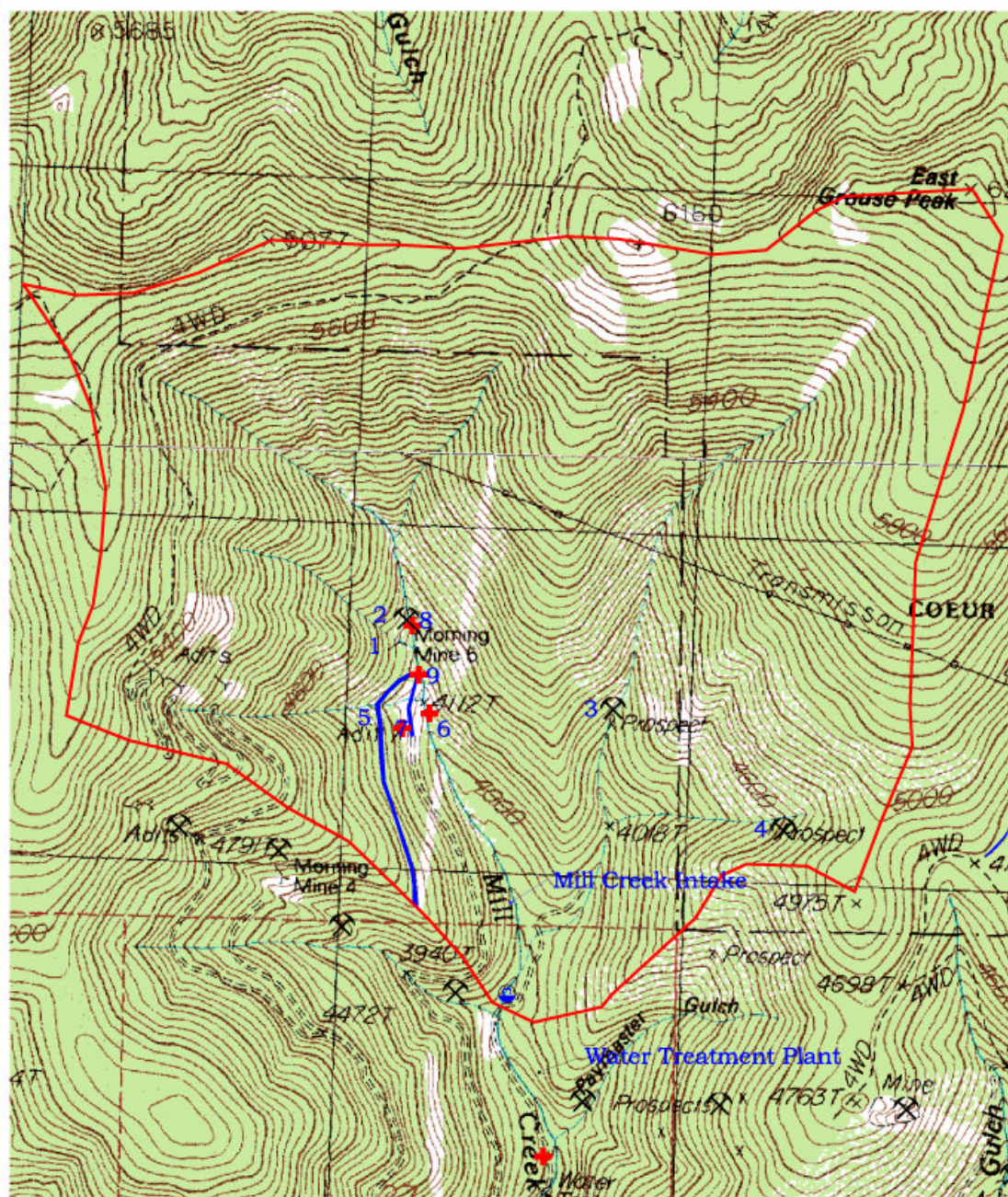
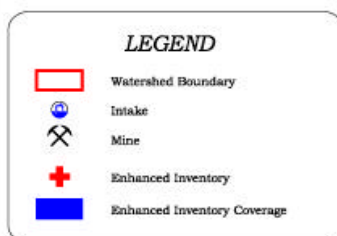


Figure 2 PWSNO 1400017
 East Shoshone County Water District-Mullan
 Mill Creek Watershed
 Delineation Map and Contaminant Sources

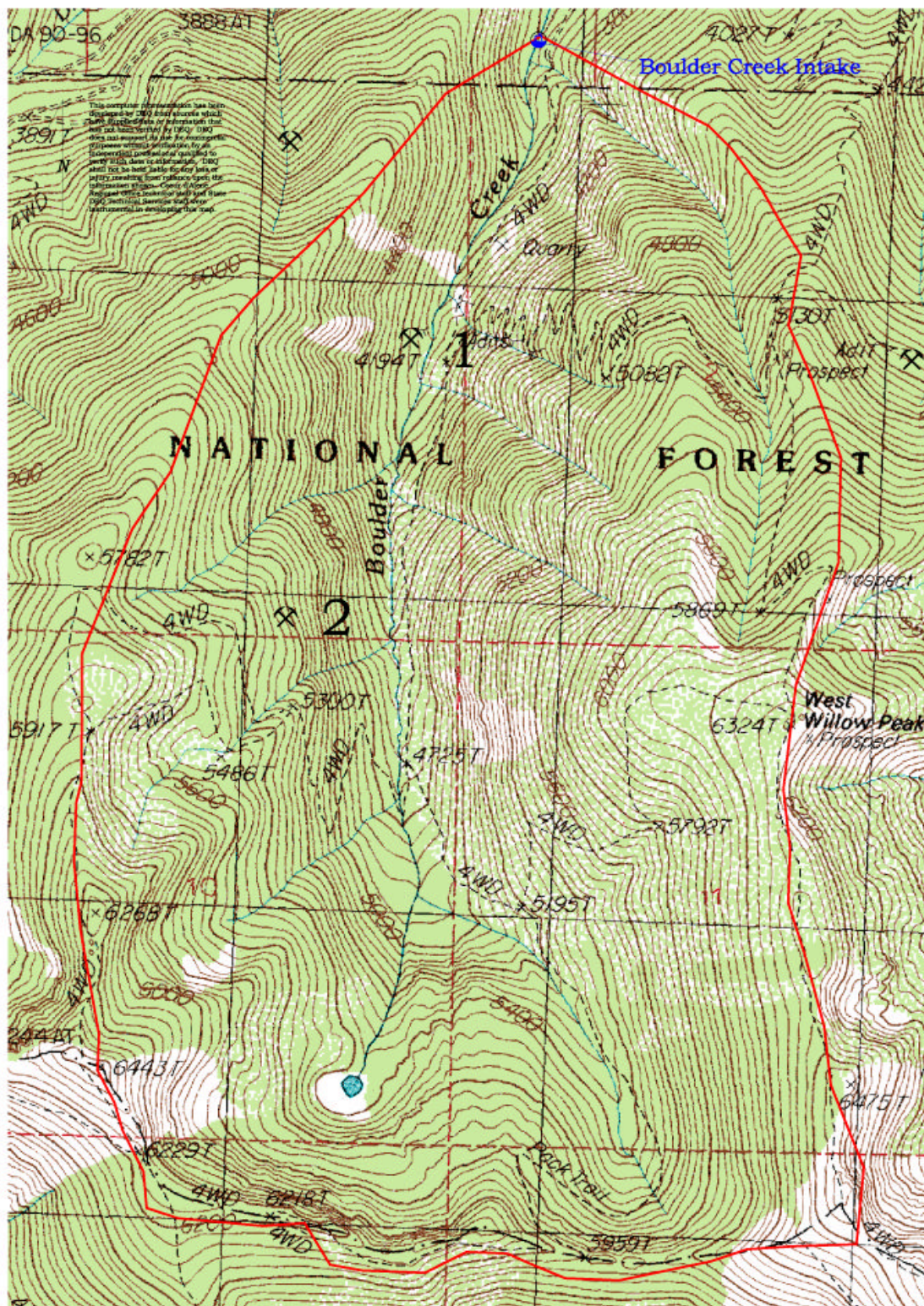


This computer representation has been developed by IDEQ from accurate data which have been verified by IDEQ. IDEQ does not warrant the use for non-intended purposes without verification by an independent professional qualified to verify such data or information. IDEQ shall not be held liable for any loss or injury resulting from reliance upon the information shown. Coeur d'Alene Regional Office technical staff and State IDEQ Technical Services staff were instrumental in developing this map.



mullan.apr 9/14/00
 SAMS





Legend

- Watershed Boundary
- Intake
- X Mine

Figure 3 PWSNO 1400017
 East Shoshone County Water District-Mullan
 Boulder Creek Watershed
 Delineation Map and Contaminant Sources

0 0.2 0.4 0.6 0.8 Miles



Section 3. Susceptibility Analysis

Significant potential sources of contamination were ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity and construction of the intake, land use characteristic, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants.

The relative ranking that is derived for each intake is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Intake Construction

The construction of the East Shoshone County Water District-Mullan public water system intake directly affects the ability of the intake to protect the source from contaminants. The East Shoshone County Water District-Mullan drinking water system consists of two intakes that provide surface water for domestic and industrial uses. Susceptibility to contamination based on intake construction details reported in IDEQ sanitary surveys is low. Infiltration galleries provide some protection from potential contaminants prior to treatment.

Potential Contaminant Source and Land Use

The Mill Creek intake rated moderately susceptible to inorganic chemical contamination because of the three mines and road building activity in the watershed. It rated low for volatile organic chemicals, and for synthetic organic chemicals. As indicated in Table 2 the intake shows a low susceptibility to microbial contamination, which is generally related to storm water runoff, the presence of septic systems, or agricultural grazing in the surface water protection zone. Boulder Creek is ranked in the low susceptibility category for all four classes of contaminants

Table 2. Summary of East Shoshone County Water District--Mullan Susceptibility Evaluation

Intake	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Mill Creek	M	L	L	L	L	M	L	L	L
Boulder Creek	L	L	L	L	L	L	L	L	L

H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

H* - Indicates source automatically scored as high susceptibility due to presence of either a VOC, SOC or an IOC above the Maximum Contaminant Level in the finished drinking water or the presence of significant contaminant sources within 1000 feet of the intake and within the delineated area.

Susceptibility Summary

The East Shoshone County Water District-Mullan drinking water source is most threatened by sediment-laden runoff from disturbed land in the watershed. Dissolved heavy metals to entering the creeks in seepage from abandoned mines in the Mill Creek drainage pose some risk to the drinking water.

The final scores for the susceptibility analysis were determined from the addition of the Potential Contaminant Source/Land Use Score and Source Construction Score.

Final Susceptibility Scoring:

0 - 7 Low Susceptibility

8 - 15 Moderate Susceptibility

> 16 High Susceptibility

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For East Shoshone County Water District-Mullan, source water protection activities should focus on implementation of best management practices aimed at reducing sediment runoff from logging, mining and road maintenance activity in the drainage. The Idaho Department of Lands is vested with the authority to enforce of the Idaho Forest Practices act even on privately owned land. Since the land in the protection zones is not owned by East Shoshone County Water District, partnerships with federal, state and local agencies and private land owners to regulate land use in the watersheds should be established and are critical to success. Due to the relatively short time involved with the movement of surface water, source water protection activities should be aimed at short-term management strategies, and at the same time need to address long-term impacts from mining, logging and other land disturbances.

Assistance

Public water suppliers and others may call the following IDEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the IDEQ office for preliminary review and comments.

Coeur d'Alene Regional IDEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Websites: <http://www.deq.state.id.us>

References Cited

Idaho Department of Agriculture, 1998. Unpublished Data.

Idaho Division of Environmental Quality, Unpublished Data

EPA (U.S. Environmental Protection Agency), 1997, State Methods for Delineating Source Water Protection Areas for Surface Water Supplied Sources of Drinking Water, EPA 816-R-97-008, 40p.

U.S. Government Printing Office, 1995, Code of Federal Regulations, 40 CFR 112, Appendix C-III, Calculation of the Planning Distance

Rules Pertaining to the Idaho Forest Practices Act Title 38, Chapter 13, Idaho Code, July 1996, Idaho Department of Lands, Boise, Idaho

Attachment A

East Shoshone County Water District-Mullan Susceptibility Analysis Worksheets

Surface Water Susceptibility**Report**

11/9/00 1:41:43 PM

Public Water System Name :

Public Water System Number :

Source:

E SHOSHONE COUNTY WATER DIST MULLAN**1400017****MILL CREEK****1. System Construction****SCORE**

Intake structure properly constructed	YES	0
Infiltration gallery or well under the direct influence of Surface Water	YES	0

Total System Construction Score**0****2. Potential Contaminant Source / Land Use**

IOC	VOC	SOC	Microbial
Score	Score	Score	Score

Predominant land use type (land use or cover)		0	0	0	0
Farm chemical use high	NO	0	0	0	
Significant contaminant sources *	NO				
Sources of class II or III contaminants or microbials		4	0	0	0
Agricultural lands within 500 feet	NO				
		0	0	0	0
Three or more contaminant sources	NO	0	0	0	0
Sources of turbidity in the watershed	YES	1	1	1	1

Total Potential Contaminant Source / Land Use Score

9	1	1	1
---	---	---	---

3. Final Susceptibility Source Score

9	1	1	1
---	---	---	---

4. Final Source Ranking

Moderate	Low	Low	Low
----------	-----	-----	-----

* Special consideration due to significant contaminant

The source water has no special susceptibility

Surface Water Susceptibility**Report**

Public Water System Name : **E SHOSHONE COUNTY WATER DIST MULLAN**
Public Water System Number : **1400017** 11/9/00 1:41:53 PM
Source: **BOULDER CREEK**

1. System Construction**SCORE**

Intake structure properly constructed	YES	0
Infiltration gallery or well under direct influence of surface water	YES	0

Total System Construction Score**0****2. Potential Contaminant Source / Land Use**

IOC Score	VOC Score	SOC Score	Microbial Score
--------------	--------------	--------------	--------------------

Predominant land use type (land use or cover)	BASALT FLOW, UNDEVELOPED, OTHER	0	0	0	0
Farm chemical use high	NO	0	0	0	
Significant contaminant sources *	NO				
Sources of class II or III contaminants or microbials		0	0	0	0
Agricultural lands within 500 feet	NO	0	0	0	0
Three or more contaminant sources	NO	0	0	0	0
Sources of turbidity in the watershed	NO	0	0	0	0

Total Potential Contaminant Source / Land Use Score**0 0 0 0****3. Final Susceptibility Source Score****0 0 0 0****4. Final Source Ranking****Low Low Low Low**

* Special consideration due to significant contaminant

The source water has no special susceptibility

POTENTIAL CONTAMINANT INVENTORY

List of Acronyms and Definitions

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). CERCLA, more commonly known as “Superfund” is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.



Mission: To protect human health and preserve the quality of Idaho's air, land, and water for use and enjoyment today and in the future.

[Search the Site](#)

[Site Index](#)

[Previous Page](#)



[Recent additions to DEQ's Web site](#)



[Current requests for public comment and news releases](#)



[Listing of events, public meetings and workshops](#)



Air Quality

[Programs that assure Idaho meets air quality standards](#)



Water Quality

[Programs that assure Idaho meets water quality standards. Includes drinking water.](#)



Waste Management & Remediation

[Programs that monitor solid and hazardous waste and UST/LUST](#)



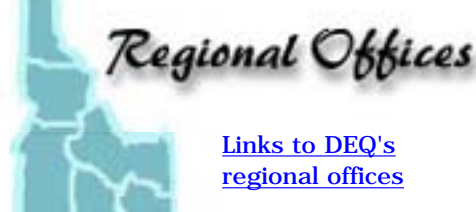
About DEQ

[Information about DEQ's board, organization and job opportunities, and public records requests](#)



Permits & Certifications

[Regulated activities requiring permits](#)



Regional Offices

[Links to DEQ's regional offices](#)



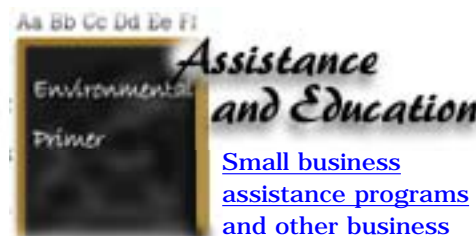
DEQ Policies

[Policies, guidance documents and precedential orders](#)



Rules and Rulemaking

[Synopsis of Idaho's environmental rules](#)



Assistance and Education

[Small business assistance programs and other business and community programs](#)



[Geographic Information Systems and interactive mapping](#)



[DEQ's oversight activities at the Idaho National Engineering and Environmental Laboratory](#)



[DEQ documents and publications](#)



[Links to other environmental web sites](#)

DEQ State Office
1410 N. Hilton
Boise, ID 83706
(208) 373-0502
Fax: (208) 373-0417

Coeur d'Alene Regional Office
2110 Ironwood Pkwy
Coeur d'Alene, ID 83814
(208) 769-1422
Fax: 769-1404

Twin Falls Regional Office
601 Pole Line Rd., Suite 2
Twin Falls, ID 83301
(208) 736-2190
Fax: (208) 736-2194

Lewiston Regional Office
1118 "F" Street
Lewiston, ID 83501
(208) 799-4370
Fax: (208) 799-3451

Pocatello Regional Office
444 Hospital Way, #300
Pocatello, ID 83201
(208) 236-6160
Fax: (208) 236-6168

Boise Regional Office
1445 N. Orchard
Boise, ID 83706-2239
(208) 373-0550
Fax: (208) 373-0287

Idaho Falls Regional Office
900 N. Skyline, Suite B
Idaho Falls, ID 83402
(208) 528-2650
Fax: (208) 528-2695

© 2000 - Idaho Department of Environmental Quality
This page was last updated on 3/27/03